
Eleocharis gonzaleziae (Cyperaceae), a New Species from Northern Mexico

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ABSTRACT. *Eleocharis gonzaleziae* D. J. Rosen, a new species from the high plateau of northern Mexico, is described from the state of Durango and illustrated. Taxonomic notes on the new species are provided, including a comparison to a morphologically similar species, *E. bolanderi* A. Gray.

RESUMEN. *Eleocharis gonzaleziae* D. J. Rosen, una nueva especie del Altiplano del México norteño, se describe del estado de Durango y se ilustra. Las notas taxonómicas sobre la nueva especie se proporcionan, incluyendo una comparación a una especie morfológicamente parecida, *E. bolanderi* A. Gray.

Key words: Cyperaceae, *Eleocharis*, IUCN Red List, Mexico, subseries *Truncatae*.

Eleocharis R. Brown is a worldwide genus of about 200 species and about 600 published names and with a concentration of taxa in tropical America (González-Elizondo & Tena-Flores, 2000). *Eleocharis* is characterized by bladeless leaf sheaths, its inflorescence comprising a single spikelet at the summit of the culm, bisexual flowers, and a fruit (achene) bearing a persistent style base or tubercle. The structural simplicity of *Eleocharis* morphology and lack of phylogenetically informative characters make it one of the most taxonomically difficult genera in Cyperaceae (González-Elizondo & Tena-Flores, 2000). *Eleocharis* includes many difficult species complexes in need of taxonomic revision involving species that have never been clearly defined (Smith, 2001).

Eleocharis was first treated comprehensively by Svenson (1929, 1932, 1934, 1937, 1939), representing the first attempt to critically compare Old World and New World species. Svenson's (1929) worldwide monograph included a conservative infrageneric classification of 11 series and six subseries. A more recently proposed infrageneric classification (González-Elizondo & Peterson, 1997) comprises four subgenera, seven sections, eight series, and seven subseries.

Eleocharis subser. *Truncatae* Svenson is strictly an American group belonging to subgenus *Eleocharis*, section *Eleocharis*, series *Eleocharis* (González-Elizondo & Peterson, 1997), and is currently in need of

revision throughout its range (Smith et al., 2002; González-Elizondo & Reznicek, 2005). *Eleocharis* subser. *Truncatae* is distinguished by its truncate, indurate upper sheaths with a sometimes prominent tooth or apiculate projection and its trigonous achenes (Svenson, 1929; González-Elizondo & Peterson, 1997). In Mexico, subseries *Truncatae* is currently represented by ca. 10 species (McVaugh, 1993; Espejo Serna & López Ferrari, 1997; Strong & González-Elizondo, 2000) and includes a taxonomically difficult species complex involving *E. montevidensis* Kunth and its many forms, allied species (e.g., *E. dombeyana* Kunth, *E. ignota* S. González & Reznicek), and several undescribed taxa (González-Elizondo & Reznicek, 2005; González-Elizondo, pers. comm.).

Recent study of material belonging to subseries *Truncatae* collected during a field trip in the Mexican state of Durango has led to the discovery of a remarkably distinct, yet undescribed species.

***Eleocharis gonzaleziae* D. J. Rosen, sp. nov. TYPE:**
Mexico. Durango: Mpio. Durango, W of roadside of MEX Hwy. 23, betw. Mezquital & Durango, ca. 26 km S of Durango, 23°53'08.2"N, 104°30'01.8"W, 1845 m, 16 Sep. 2005, D. J. Rosen 3507 with S. González-Elizondo, R. Carter, R. Guaglianone, P. Peterson, A. Torres (holotype, CIIDIR; isotypes, MICH, MO, TAES, TEX, VSC, WIS). Figure 1.

Haec species *Eleochariti bolanderi* A. Gray simillima, sed ab ea culmis elatis, vaginis foliaribus distalibus dente conspicuo instructis, spiculis angustioribus, squamis angustioribus pallidioribus et acheniis minoribus differt.

Perennial, densely tufted; roots fine, fibrous, mostly drab brown; rhizomes caudex-like, mostly hidden by culms and roots, short, 2.1–2.8 mm diam., hard, cortex persistent, internodes very short, scales not evident. *Culms* subterete, often prominently bluntridged when dry, 31–41.5 cm × 0.5–0.6 mm, internally spongy, light green, fragile and brittle when dry. Distal leaf sheaths persistent, not splitting, proximally brown, pinkish, or stramineous, distally stramineous, longitudinally ridged, apex truncate, callose, brown-tinted, prominent tooth present, the free portion 0.4–

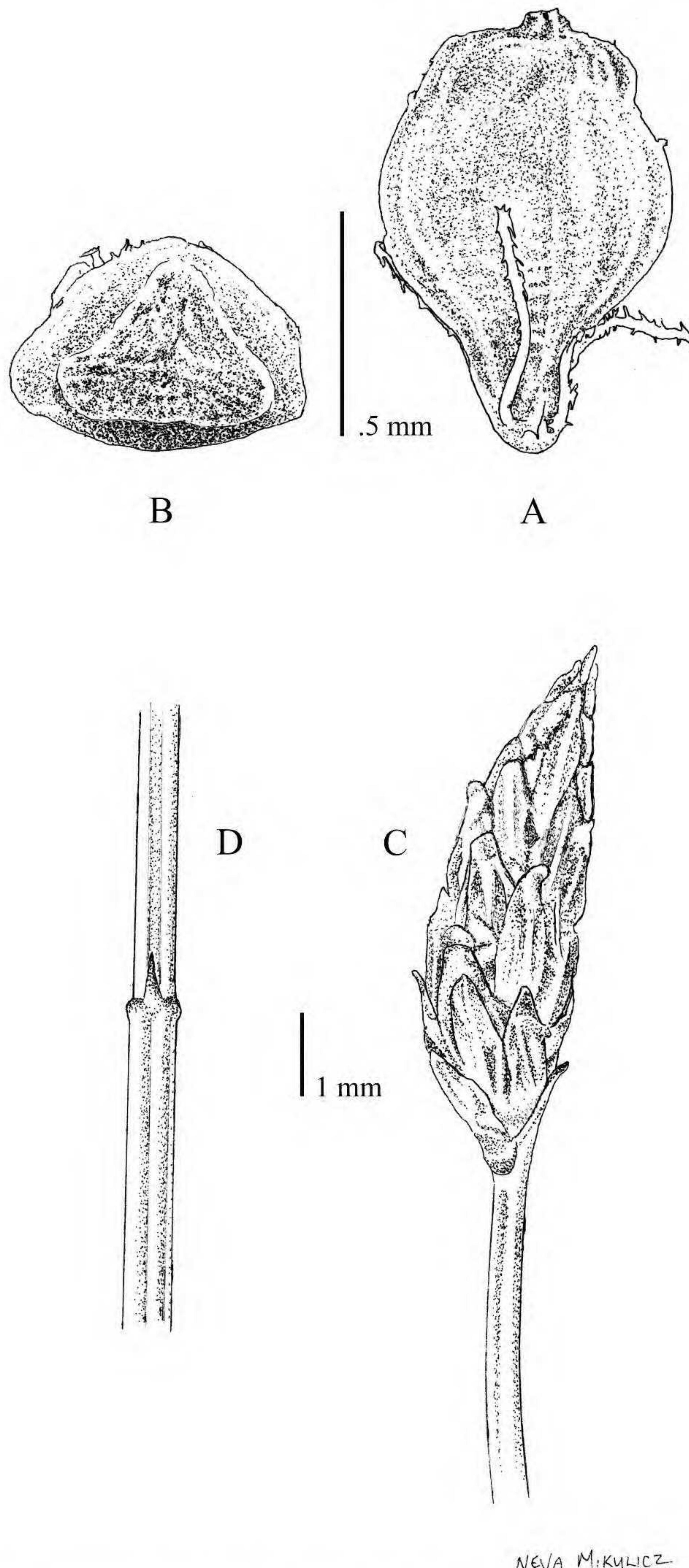


Figure 1. *Eleocharis gonzaleziae* D. J. Rosen. —A. Achene (abaxial view). —B. Achene (apical view). —C. Spikelet. —D. Leaf sheath summit. Drawn from the holotype D. J. Rosen 3507 (CIIDIR).

0.6 mm long. Spikelets ovoid, 5–7 × 1.2–1.5 mm, apex acute; proximal scale persistent and amplexicaulous, entire, broadly rounded, the distal portion hyaline-erose; subproximal scale with flower; remain-

ing floral scales loose, ascending in fruit, midrib regions stramineous, marginally dark purplish to dark brown, ovate to lanceolate, 1.7–2.3 × 0.8–0.9 mm, apex entire, acute, hyaline. Flowers with perianth

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Table 1. Morphological comparison of *Eleocharis gonzaleziae* and *E. bolanderi*.

Characters	<i>E. gonzaleziae</i>	<i>E. bolanderi</i>
Culm height (cm)	31–41.5	10–30
Distal leaf sheath tooth	present	absent
Spikelet width (mm)	1.2–1.5	2–3
Floral scale width (mm)	0.8–0.9	1.5
Floral scale color	stramineous, marginally dark purplish to dark brown	dark brown to blackish, midrib stramineous or greenish
Achene dimensions (mm)	0.8–0.9 × 0.5–0.6	0.9–1.2 × 0.7–0.8

bristles 3 to 6, retrorsely spinulose nearly to the base, white to stramineous, slender, often unequal, from rudimentary to 0.6–0.8× achene length; stamens 3; anthers dark yellow, 0.7–1 mm; styles 3-fid. Achenes falling with scales, stramineous, smooth or only very finely cancellate even at high magnification, obovoid, abaxial angle prominent to obscure, 0.8–0.9 × 0.5–0.6 mm, apex broadly truncate, green-tinged. Tuber-cles stramineous to brown, sunken with a central apiculus, wider than long, often 3-lobed, 0.05–0.2 × 0.3–0.4 mm.

Habitat and distribution. *Eleocharis gonzaleziae* grows mixed with other species of *Eleocharis* in standing water in deep soils at 1845 m above sea level. It is possibly an endemic of the Mexican Plateau region in the state of Durango and is currently known only from the type collection.

IUCN Red List category. Fieldwork in 2007, in the region of the type locality, failed to yield discovery of any additional populations of *Eleocharis gonzaleziae*. For now, it seems sufficient to assign a conservation status as DD (Data Deficient) according to IUCN Red List criteria (IUCN, 2001).

Etymology. The name of the species is dedicated to my generous colleague, friend, and sedge authority, M. Socorro González-Elizondo, founder and Curator of the Herbarium, CIIDIR Unidad Durango, Instituto Politécnico Nacional.

Relationships. *Eleocharis gonzaleziae* most closely resembles *E. bolanderi* A. Gray of the northwestern United States. Previous reports of *E. bolanderi* (as *E. montevidensis* var. *bolanderi* (A. Gray) V. E. Grant) by Espejo Serna and López Ferrari (1997) from Mexico are based on specimens of *E. montevidensis* s.l. with thick rhizomes (González-Elizondo, pers. comm.). *Eleocharis gonzaleziae* differs from the other slender-culmed species of subseries *Truncatae* in the Mexican high plateau in having achenes with a broadly truncate apex and a sunken, apiculate tubercle. Table 1 provides a comparison of characters between *E. gonzaleziae* and the morphologically similar *E. bolanderi*.

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